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Editor - Captain L. B. Marshall, MC, USN (RET)

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Graduate Training in Navy Hospitals

Applications for assignment to residency training duty are desired from Regular medical officers and those Reserve medical officers who have completed their obligated service under the Universal Military Training and Service Act, as amended. The following chart lists those Navy hospitals which currently have vacancies at the first year level, and the specialties in which these vacancies exist. Vacancies are also available at other than first year levels. Information concerning non-first year appointments may be obtained by correspondence addressed to the Chief of the Bureau of Medicine and Surgery.

	Bethesda, Md.	Chelsea, Mass.	Oakland, Calif.	Philadelphia, Pa.	Portsmouth, Va.	San Diego, Calif.	St. Albans, N. Y.
Anesthesia	x	x	x				
General Practice		x		x			
Internal Medicine		x			x		
Neurology	x		x				
Orthopedics	x	x					
Otolaryngology			x	x			
Pathology	x		x	x	x		
Pediatrics			x				
Psychiatry	x		x	x			
Radiology	x	x	x		x		
Surgery				x	x	x	
Urology					x		
Cardio-Vascular Diseases	x						

Letters of application for first year assignments should be forwarded via official channels to the Chief of the Bureau of Medicine and Surgery, and should include an obligated service agreement prepared in accordance with the provisions of BuMed Instruction 1520.7.

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Notice

Due to critical shortage of medical officers, the Chief, Bureau of Medicine and Surgery, has recommended, and the Chief of Naval Personnel has concurred, that Reserve medical officers now on active duty who desire to submit requests for extension of their active duty for a period of three months or more will be given favorable consideration.

Naval Center for Aural Rehabilitation

On 15 July 1944, the Surgeon General of the Navy designated the U. S. Naval Hospital, Philadelphia, Pa., as the Naval Aural Rehabilitation Center.

In the directive establishing the Naval Center for Aural Rehabilitation, it was directed that all cases of permanent deafness be transferred to Philadelphia with expedition; deafness being considered to exist when there is a true loss of hearing in the better ear to 30 decibels or more within the conversational range (256 to 2048) or a loss to 3/15 or more to the whispered voice when audiometry is not available. The 30 decibel level is not arbitrary but has been demonstrated as the level of hearing loss at which the patient himself notices a disability.

Aural Rehabilitation implies a complete study of the cause and degree of hearing loss followed by a replacement of perceptual ability by either treatment of the disease, replacement by a prosthetic device, retraining, readjustment, or any other measure indicated which may permit the deafened person to resume his place at his work if his services with a hearing defect can be utilized or, if otherwise, to resume his place in civilian life at a gainful occupation.

The professional staff of the Philadelphia Aural Rehabilitation Center consists of the otologist assigned to the EENT Service of the Naval hospital and an audiologist and a speech therapist assigned to the Aural Rehabilitation Center. At times, psychologists, statisticians, electronic technicians, and others have been attached to the Center. An Ear Mold technician is required and is usually a member of the staff enlisted personnel. All otolaryngology residents are well trained in the facets of aural rehabilitation as a part of their training.

The professional stature of the staff is greatly enhanced by the close liaison with The Graduate Medical School of the University of Pennsylvania and Jefferson Medical College, from which institutions consultant services are performed. Other fine medical institutions, medical libraries, and special schools within the city are of particular reinforcement value.

A one-story, two-sectional structure with sound-proofed air-conditioning and humidity control, houses the various highly specialized facilities and equipment required for diagnostic treatment, training, and related procedures.

Upon admission, the patient is assigned to one of the staff otologists who is responsible for the patient's workup consisting of a complete history, physical examination, routine clinical studies, and pertinent consultations as needed for a complete physical evaluation.

The aural rehabilitation course in its broadest application includes a course of auditory retraining, speech (lip) reading, and a fitting and familiarization of an individual hearing aid. This course consists of daily classes of instruction over a period of four (4) weeks. The whole program is designed to develop the patients' ability to perceive related auditory, visual and

kinesthetic sensory stimuli and to coordinate them in a sensory picture from which a coordinated motor pattern will be the response.

In the fitting of hearing aids, there are hearing aids from about ten different companies available for trial in the initial selection period. There is no limit placed on the number of aids tried on each patient, but the aid finally recommended must meet the following criteria: (a) It must produce a suitable gain in speech reception; (b) It must be satisfactory to the patient in terms of tonal quality and of performance in noise; and (c) The amplification of the patient's own voice must be acceptable. The aid which produces the optimal results is delivered to the patient, following which detailed instructions are given concerning its use.

In addition to the issuance of hearing aids to active service personnel, this Center is a contract center for the Veterans Administration in the testing and fitting of hearing aids on eligible veterans.

In the speech rehabilitation course, it is noted that many patients, having a moderate or small amount of deafness and markedly impaired speech discrimination or intelligibility, are benefited by speech or lip reading instruction. This is especially true in cases of certain high tone nerve type hearing losses in which the hearing for low tones is relatively good. In speech analysis, it is evident that hearing for the vowel sounds will be good but that the hearing for the consonant portions of speech will be defective. Special attention to the lips and facial movements often fills in the portion of speech that is missing to the person. The patient is taught to make use of all sensory channels of perception and to feel, hear, and see simultaneously.

Among the disorders treated in the speech therapy clinic are stuttering, cerebral aphasias, local paralysis of phonation or dysphonias, and other developmental speech defects. More recently, the speech therapist has been prominent in re-education of laryngectomized patients by teaching the patients to make use of the so-called esophageal voice.

Aural surgery is performed on many cases of deafness referred to the Center by reason of deafness due to ear diseases which are amenable to some degree of surgical correction in conjunction with, or instead of, rehabilitation itself.

The fenestration operation has been found effective in partial restoration of hearing for persons with the clinical entity of otosclerosis. In well over 80% of these cases, the hearing can be restored to a serviceable level by this procedure. The selection of a hearing aid or of the fenestration operation is entirely of the patient's choice following the presentation of all the facts regarding the advantages and disadvantages of both methods.

In general, patients requiring aural rehabilitation do not meet the physical standards for duty in the Navy or Marine Corps. Therefore, instructions are in effect that such cases are to be brought before the appropriate medical board or board of medical survey.

Approximately one half of the patients received in the hearing center, after a complete workup, are found not to need the course of aural rehabilitation and, according to present standards of the Defense Department, they are still considered fit for active duty. A large proportion of these cases, due to the long distance involved in transfer from their command to the Center, time away from their Command, and often the previous questionable nature and degree of hearing loss, are best disposed of by a board of medical survey before returning to duty in order that existing defects are properly noted and proper action registered as to the patient's fitness for duty.

The majority of patients who are rehabilitated and appear before clinical boards are then processed by physical evaluation boards and separated from active duty status. A few cases with outstanding service and experience records, especially in critical ratings, have been returned to duty by action of cognizant bureaus.

The majority of the patients, separated from the service by reason of hearing defects, register later with the Veterans Administration for follow-up service. By this means, spare aids and batteries are furnished certain eligible personnel.

	<u>Total</u>	<u>VA</u>	<u>Service</u>	<u>Depend.</u>	<u>Others</u>	
Cases Tested	21,801	7,000	11,923	1,697	1,181	8/7/44 to 6/30/55
Hearing Aids Issued	5,323	1,873	3,445	-	-	(same)
Completed Aural Rehabilitations	822	172	641	9	-	1/1/43 to 6/30/55
Man Hours Aural Rehabilitations	49,157	10,329	38,305	523	-	(same)
Hours of Speech Correction	6,814	3,169	3,003	642		(same)

Hearing tests and hearing aids fittings were done at the Otological Research Laboratory, Abington Memorial Hospital from 8/7/44 to 2/26/45. (Aural Rehabilitation Center, USNH, Philadelphia, Pa.)

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The Kolff-Merrill Artificial Kidney

This communication reports the author's experience with 10 patients who had hemodialysis by an artificial kidney at the United States Naval Hospital at Oakland, California, between July 1953 and June 1954. Six of the patients were in extremis from acute renal insufficiency.

Acute renal insufficiency is a broad descriptive term embracing the bizarre biochemical, clinical, and physiologic manifestations induced by sudden decompensation of the kidneys.

The first experimental artificial kidney was devised in the laboratory of Abel, Rowntree and Turner in 1913, but because of technical obstacles remained in the research field until 1944 when Kolff, a Dutch physician in Kampen, Holland, built an artificial kidney machine during the German occupation and successfully applied it clinically. He used cellophane tubing as a conduit to carry the patient's blood through an extracorporeal circuit in contact with an electrolyte bath of known composition, equivalent to the concentration of essential electrolytes and glucose in normal plasma.

When cellophane tubing is grossly swollen with water, it possesses capillary channels of submicroscopic size through which molecules of diffusible substances pass from the blood into the bath fluid, or conversely. These submicroscopic fenestra in wet cellophane membrane are permeable to crystalloids (inorganic electrolytes) and to organic substances of small molecular size (urea, creatinine, uric acid, glucose). However, plasma-bound proteins, hemoglobin, red and white corpuscles, and platelets are nondiffusible because of their larger structure. The principle on which hemodialysis is based depends on the relative concentration of diffusible molecules in the bath and in the blood stream.

In the last ten years a number of improvements and modifications of this principle have been adopted--notably by Merrill of Boston-- and today there are some 50 such machines in the United States. The Kolff-Merrill apparatus provides a large dialyzing area of approximately 24,000 square centimeters, whereas the dialyzing area of the normal kidneys in an adult is approximately 7600 square centimeters. The larger the surface area the more efficient the dialysis, other things being equal.

Eight hundred milliliters of compatible donor blood is required to prime the coils of cellophane wound spirally around a metal drum. Blood from the radial artery of the patient is conducted by sterile tubing through a continuous extracorporeal circuit of approximately 140 feet, some 120 to 130 feet of which is cellophane in contact with the dialyzing bath. After "purification," the blood is returned to the patient's vein, usually in the anti-cubital area of the arm from which it is withdrawn. The rotary motion of the metal drum, around which the cellophane tubing is wound, propels the blood through the machine, and a pump pulls the dialyzed blood into a sterile reservoir whence it flows by gravity to the venous circulation. Heparin is

administered to the patient at regular intervals during dialysis to prevent hemocoagulation. The entire circuit must be airtight so that no bubbles enter the system; rate of flow of blood from the artery must equilibrate with the rate of venous return, or vice versa; and there must be no leaks. During a six-hour procedure the total blood volume circulates through the extracorporeal system approximately every 30 minutes. Hence, there are usually 12 complete exchanges of dialyses of the patient's blood with the artificial kidney bath during a typical "run."

In a one-year period, 1953-54, ten patients had hemodialysis with the Kolff-Merrill artificial kidney at the U.S. Naval Hospital, Oakland. Of eight patients with acute renal insufficiency, six recovered and two died. The two other patients had chronic terminal renal disease, and hemodialysis was carried out in the hope that they might be temporarily improved. In both cases the results were disappointing and did not justify the means employed. Each of the six patients who recovered had acute renal insufficiency that had developed after severe traumatic episodes. In each instance, the patient was very carefully observed and treated conservatively for a period of 7 to 13 days before dialysis was recommended because of extreme azotemia, severe potassium intoxication, or both. Details of the condition of these patients and the results of hemodialysis are given in case reports.

Clinical management of acute renal insufficiency is usually difficult and, at times, discouraging but a majority of patients will respond to conservative measures. The causes of death in the remaining minority are pulmonary edema, extreme uremia, fulminating potassium intoxication and overwhelming sepsis from infection usually introduced at the time of the original trauma, which, in turn, precipitated the lower nephron nephrosis. Conservative therapy, with special emphasis on proper hydration of each individual patient (scrupulously avoiding overhydration) is the keystone of the therapeutic arch. In lower nephron nephrosis, total fluid intake per day must be limited to the volume of urine excreted in the previous 24 hours, plus the volume of stool or vomitus together with a daily allowance of 700 to 750 ml. for water lost by evaporation through the skin and as water-vapor from the lungs. This "insensible water loss" is constant, seldom exceeds 800 ml. per day, and must receive diligent attention during the entire phase of oliguria.

In the event that diuresis does not come about spontaneously within 7 to 14 days, extracorporeal hemodialysis may become mandatory to correct the severe electrolyte imbalance that occurs as a result of acute failure of the renal excretory mechanism. Because uremia may not reach a meridian until 5 or 6 days after onset of diuresis, dialysis may be mandatory during the late phase of oliguria or the early stage of diuresis, if complicated by hyperkalemia (serum potassium levels of 8 to 11 mEq. per liter) or if there are other biochemical signs of metabolic bankruptcy.

However, the artificial kidney does not necessarily induce diuresis. It merely provides a "renal respite" until such time as regeneration of the tubular epithelium can initiate adequate urine flow spontaneously. Extracorporeal hemodialysis, therefore, is recommended and undertaken only with the hope that it will temporarily relieve the kidneys of an overwhelming load of toxic metabolites and, thereby, pave the way indirectly for spontaneous recovery of the excretory function. Thereafter, renal homeostasis may be restored gradually over the next 6 to 12 months.

Clinical management of the syndrome of acute renal insufficiency should be predicated on cordial and prolonged collaboration between the internist, surgeon, physiologist, urologist, biochemist, and reliable laboratory technicians.

In reviewing these 10 cases, it becomes apparent that the use of the artificial kidney is not warranted in infectious processes or possible allergic states such as glomerulonephritis or an acute exacerbation of chronic nephritis. The author's experience with chronic pyelonephritis is likewise discouraging. Hemodialysis is seldom justifiable in the terminal stages of chronic uremia due to underlying irreversible renal disease. Nor should it be recommended when extreme hypertension is present, because heparinization of the patient may induce fatal cerebral hemorrhage.

The prime indications for hemodialysis are critical azotemia and rapidly progressive fulminating potassium intoxication. Extreme metabolic acidosis reflects the failure of renal acid-base regulation and is another positive indication for dialysis. Application of an artificial kidney often is dramatically effective in acute potassium intoxication which otherwise may cause death in a few hours. Other indications for dialysis include prolonged coma from extreme barbiturate intoxication, overwhelming salicylism, and poisoning from bichloride of mercury.

Definite contraindications exist to the use of the artificial kidney, notably: grossly active bleeding from fresh wounds; oozing of blood from the gastrointestinal tract or the uterus; subarachnoid or other intracranial hemorrhage. If uremia is secondary to acute pancreatitis, generalized peritonitis, overwhelming pneumonia, sepsis, or septicemia, use of the artificial kidney is illogical because it can not eliminate the primary cause of uremia in such instances. (Captain C. C. Shaw, (MC) USN, The Kolff-Merrill Artificial Kidney: California Med., 82: 293-301, April 1955)

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

Heart Disease in the Philippines

This article presents the results of a survey from the four big teaching general hospitals in Manila, covering the postwar years from 1947 to 1953 inclusive: Santo Tomas University Hospital, Philippine General Hospital, North General Hospital, and Victoriano Luna General Hospital. All are teaching institutions and general hospitals. However, the Victoriano Luna General Hospital, being the main hospital of the Armed Forces of the Philippines, admits only occasionally women and children dependents of Philippine Army service-men. Because of this reason, the data from this last hospital were not merged with data from the other three.

The medical and pediatric services were the only ones reviewed, because it is to these services that cardiac patients are most often admitted. The survey could not be extended prior to 1947 because at that time hospital record sections in Manila were being reorganized.

From these four hospitals, a total of 67,826 case records were available. The Victoriano Luna General Hospital series of 14,164 case records was analyzed separately. Moreover, inasmuch as approximately 60% of all medical beds in this hospital are reserved for patients with pulmonary tuberculosis, such a segment was further set aside; this left a total of 5666 case records as material for this study coming from this Army hospital. The rest of the data from the other three general hospitals, totaling 53,662 case records, was put together and analyzed as one composite group. The analysis of the Santo Tomas University Hospital data has been reported previously.

The patients in this study were mostly from Manila and the surrounding provinces, but there were also many who came from distant places in the Philippine Archipelago. Therefore, there was a fairly good regional representation. These patients were all admitted to charity wards and, hence, belonged to the lower economic group. No attempt was made to compare the data with that obtained in private practice; such a study would be desirable in the future.

Only those patients, exhibiting definite clinical and laboratory evidence of organic heart disease, were included in this survey. Whenever post-mortem data were available, the latter were considered in the diagnosis. Other vascular conditions, like essential hypertension, arteriosclerosis, peripheral vascular diseases, and the nephritides, were not included, unless the heart was clearly involved. It is well known that most of these conditions frequently lead to organic cardiac involvement which, many times, becomes the chief source of difficulty, if not death.

This is the first attempt at reporting a statistical survey of the occurrence of heart disease in the Philippines, based upon the combined series of cases in the large, teaching general hospitals in Manila and covering the entire postwar period from 1947 to 1953 inclusive. These hospitals were chosen, not only because they are large, teaching institutions, but also

because the patients admitted therein represented a fairly good cross section of the population made up essentially of Filipino patients. Such a material satisfies the objective of looking into the heart disease problem, not only in the Philippines, but particularly in the Filipino. That racial factor in heart disease may have some importance is suggested by Hutcheson and co-workers who found a slightly higher incidence of heart disease among Negroes than among the whites. The same authors found more hypertensive heart disease in the Negro than in the white, whereas arteriosclerotic heart disease gave the opposite racial distribution. Chavez likewise reported that hypertension was significantly less frequent in the native Indian as compared to the cosmopolitan Mexican "mestizo." For this reason, the present study was concentrated on Filipino patients in order to avoid the possible statistical influence produced by an admixture of patients of other races found in Manila. A similar study among Chinese in Manila is now being conducted and may also yield interesting information.

The relatively high frequency among hospital admissions of rheumatic heart disease in this survey, similar to the findings of Chavez, once again disproved the "myth" that such a disease is considerably less frequent in tropical countries than in northern areas.

The prominence of hypertensive heart disease and arteriosclerotic or coronary heart disease is of special interest. These findings also disprove the impression that such disease should not be especially important among Orientals. Whether or not this is a postwar development cannot be definitely ascertained, although there seems to be a general impression among Filipino internists that these two diseases have shown an increasing incidence since World War II. Certainly, further study on possible dietary factors and other living habits are more than prompted by these facts.

Improved medical diagnosis and therapy of syphilitic infection, as White says, must be an important factor for the infrequency of syphilitic heart disease today. In the Philippines, the strong religious background should also be taken into consideration.

As a whole, the data clearly show the relative prominence and apparently increasing frequency of heart disease in the Philippines as a cause of hospital admission. (Alimurung, M. M., Herrera, F. Jr., Guytingco, A., Cruz, P. M., Heart Disease in the Philippines: Am. Heart J., 50: 293-301, August 1955)

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Aortic Insufficiency Among Young Adults

Individuals with organic valvular lesions due to rheumatic fever are considered unfit for military service. When such persons are inducted, and their cardiac lesions discovered after military service has commenced,

they are usually separated from the Service. The findings in a group such as this constitute the basis of this report. Special emphasis is placed on the unusual frequency with which aortic insufficiency was found.

During a period of 30 months, 61 soldiers were found to have rheumatic valvular disease. The diagnosis in the majority was made by virtue of referral to the Cardiac Clinic, and in the remainder, became evident during the course of examination for some other condition.

Each soldier was examined by at least three physicians. In each instance the work-up included an electrocardiogram, Roentgen studies for cardiac configuration, and a blood serology. Special studies were done, when indicated, to exclude rheumatic activity.

During World War II, a study was made of men rejected for military service because of rheumatic valvular disease. It revealed that, of 2476 individuals, 8% had aortic insufficiency, 30% mitral insufficiency, 3% aortic stenosis, and 25% mixed mitral and aortic lesions. The present study is composed of a small group that passed the selective service examination. While not describing the overall dimensions of the problem, it does indicate that, in this series, a disproportionate number of men (54%) with rheumatic heart disease, who were cleared for induction, had aortic insufficiency, compared to those with other valvular lesions.

The diagnostic triad of aortic insufficiency consists of the characteristic murmur, peripheral circulatory signs, and evidence of left ventricular enlargement. Of the three, only the murmur is in itself sufficient to make the diagnosis. The peripheral circulatory phenomena, associated with aortic insufficiency, occur with other conditions that give rise to high pulse pressure such as arteriovenous aneurysm or hyperthyroidism. They are not invariably present with aortic insufficiency and in this series were present in only 33% of the cases. Left ventricular enlargement is common to conditions other than aortic insufficiency. Conversely, this murmur may be present for a period of time with no demonstrable cardiac enlargement. This presumably reflects a small amount of regurgitation into the left ventricle. In the present series, there was evidence of left ventricular enlargement in only 2 of the 33 patients with the lesion. The murmur of aortic insufficiency is characteristic but frequently difficult to detect. The examination must be conducted in a quiet environment and with the patient in the erect or sitting position after a maximum exhalation. The examiner must be patient and familiar with the evasiveness of the murmur. When a patient gives a history of a previous rheumatic episode, special effort should be made to listen for the murmur. In patients who have pulmonary hypertension, the murmur of aortic insufficiency must be distinguished from that of pulmonic insufficiency. This problem arose in one patient who had mitral stenosis. In this instance, the presence of peripheral circulatory signs indicated the presence of the aortic lesion.

The cause of aortic insufficiency in young people is generally due to rheumatic fever. In an older age group, syphilis must be considered. Occasionally, bacterial endocarditis will occur on a bicuspid aortic valve, and a diastolic murmur will be heard. Other rare causes of aortic insufficiency are trauma and bacterial infection of a previously normal valve. No evidence to support any of these etiologies was obtained and, with a history of rheumatic fever from 70% of the patients, it seems logical to conclude that, in this series, all were due to this disease. (Ruberman, W., Hoffman, M. J., Aortic Insufficiency Among Young Adults: Am. J. Med. Sc., 230: 197-199, August 1955)

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Jimson Weed Poisoning

In metropolitan areas of the United States, one is not likely to be confronted with poisoning by *Datura stramonium*, Jimson weed, but accidental intoxication by this plant is not uncommon in rural areas of this country, particularly the eastern half.

The alkaloids, hyoscyamine, atropine, and hyoscyne, are contained in every part of the Jimson weed. Depending on the part examined, the amount will vary, but a value of 0.25% has been found to be the minimum total quantity assayed. The predominating alkaloid is hyoscyamine, with lesser amounts of the other two alkaloids. The symptoms produced by ingestion of the vegetation are not unlike those resulting from overdosage of these three alkaloids either singly or in combination.

The plant, which may attain a height of 3 to 6 feet, has a fetid odor. The leaves are dark green, sessile, large, measuring up to 4 to 6 inches, pointed, angular, and have a deeply indented margin. The leaves have a bitter, nauseating taste. A five-lobed, white, trumpet-shaped flower, which blooms from May to July, is produced and develops into a four-valved spinous capsule containing many tiny, flattened, blackish-brown seeds attached to a central placenta.

Because the plant grows wild around dung-heaped barnyards, along roadsides, ditches, and other marginal areas, it is readily available for a child to taste or eat. The leaf is frequently used in home medicinals as a tea. This home medicinal use accounted for the majority of the present cases.

Jimson weed poisoning in children was not uncommon a century ago, and it would appear that poisoning from this plant is more common now than a review of the literature would lead one to suspect. Because the symptomatology is so characteristic as to lead to prompt diagnosis when there is a high index of suspicion, several cases are reported in order to re-emphasize Jimson weed as a ready source for accidental poisoning in childhood.

The symptoms, common to all of the cases reported, are dilated pupils, marked flush of the skin, and disturbances of the central nervous system which are early manifested by marked excitability in every case. The initial reaction appears to be one of hyperirritability and delirium which may progress to convulsions and terminate in coma, depending upon either the amount of drug taken and/or individual idiosyncrasy to the drug. Other disturbances seen were involuntary picking movements, incoherent speech, and where possible to ascertain, loss of memory. Other symptoms seen, due to the parasympathetic depressant action of the alkaloids in Jimson weed, were tachycardia, xerostomia with expectoration, bladder distention, visual disturbances from poor accommodation, and injection of the throat and conjunctivae. The acute symptoms usually subside within 24 to 48 hours but mydriasis may persist for a week or more.

When ingestion of the plant is known or when the patient is seen early and the ingestion of *Datura* is suspected, gastric lavage with tannic acid (strong tea) or dilute tincture of iodine (30 drops in a pint of water) should be done to precipitate any alkaloid remaining in the stomach. If the patient is seen late, as is usually the case, this procedure is of questionable value. During the maniacal or delirious stage, sedation with short-acting barbiturates or paraldehyde should be employed in order to prevent self-injury or convulsions. As little of these drugs as is feasible should be used because central nervous system depression may occur and require the use of benzedrine or other central stimulating drugs. When dry mouth, tachycardia, or other sympathomimetic responses are distressing, pilocarpine or neostigmine may be used in an effort to control the symptoms. Parenteral fluids should be used judiciously in order to maintain proper water and electrolyte balance.

Because the most usual method in ingestion is by teas, infusions, or by accident with whole leaf or seeds, it is very difficult to determine the exact amount that any one patient receives. However, on the basis that 10 mg. of atropine is usually a fatal dose of atropine in a child, and because hyoscyamine, the principal alkaloid of Jimson weed, is somewhat more toxic than atropine, the fatal dose would appear to be in the neighborhood of 4 to 5 gm. of the crude leaf or seed. Much smaller quantities are capable of producing distressing and serious symptoms. (Mitchell, J. E., Mitchell, F. N., Jimson Weed (*Datura Stramonium*) poisoning in Childhood: *J. Pediat.*, 47: 227-230, August 1955)

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Tuberculous Cavities in Resected Specimens

According to Laennec, when an area of tuberculous matter undergoes liquefaction and establishes communication with a bronchus so that the contents can be emptied out, a cavity is formed. There has been a tendency to

think of the tuberculous cavity as being an essentially stereotyped pathologic lesion, especially as seen at autopsy. If a large number of surgically extirpated lungs are reviewed, however, it soon becomes evident that many gross and microscopic variations of the tuberculous cavity warrant careful study and description.

A considerable variation in the pathologic lesions seen in surgically resected lungs is to be expected because the disease process is interrupted at different stages of healing, whereas autopsy specimens usually present the picture of terminal disease.

The present study consists of a review of 335 consecutive cases of pulmonary tuberculosis studied between January 1, 1950, and July 1, 1954. In 240 cases of this group, cavitation was evident in the resected specimens. An attempt was made to classify the different types of cavitary lesions, taking into consideration the configuration of the cavity, nature of the lining, thickness of the wall, and pericavitory parenchymal involvement.

The character of a tuberculous cavity is undoubtedly influenced by several factors. The configuration of the lesion may be altered considerably by artificial attempts at cavity closure, such as pneumothorax, thoracoplasty, pneumoperitoneum, et cetera. This was most noticeable in those lungs which were removed following thoracoplasty. Moreover, the administration of antimicrobial agents (streptomycin, para-aminosalicylic acid, and isoniazid) is known to enhance the healing processes. Since the early days of treatment with streptomycin, numerous reports have described the effect of this drug on the healing of tuberculosis. It has also been pointed out that the perifocal effusion about tuberculous lesions is of lesser degree. In reviewing the specimens in the present study, it was noted that there was considerable proliferation of fibrous tissue about the blood vessels and lymphatics, and along the alveolar septa scattered throughout the tissues and not generally related to any specific lesion. This generalized fibrous tissue proliferation was usually accompanied by some degree of endarteritis.

Those cavities classified as early and showing little or no fibrous tissue response in their walls were thought possibly to represent instances in which inadequate antimicrobial therapy had been given. The fact that 38% of the patients in this group received therapy for less than 6 months, 46% received therapy for 6 to 12 months, and only 16% received more than 12 months of therapy prior to surgery tends to support this belief. Undoubtedly, additional factors have been instrumental in thwarting the healing process as well.

One of the most interesting groups in the study included those lesions termed "open healing." Oddly enough, none of the specimens from the resections of 1949 and 1950 showed any instances of "open healing," and only one case was recorded in 1951. In 1953, however, there were 13 such cases.

It would seem that this type of healing is related to present-day chemotherapy and more specifically to the administration of isoniazid. Johnson

and Hewitt described the roentgenographic findings on 22 patients as being cyst-like cavities. Four of their patients were operated upon, and the specimens confirmed the roentgenographic interpretations.

In a recent publication, Pagel and Simmonds gave detailed histologic observations on the effect of chemotherapy on the cavity wall. They were of the opinion that there is a cleansing of the cavity walls, with preservation of the cavity space. This occurs without epithelization of the cavity lining, even though there may be epithelium present in the bronchocavitary junction. This re-epithelization is considered to be an important factor in "open healing," according to Auerbach who has observed an increased number of "open healed" cavities following the prolonged use of chemotherapy. Another factor which contributes to greater incidence of "open healing," he believes, is the late liquefaction of inspissated cavities.

In describing the modification of tuberculous lesions in patients treated with isoniazid, de Figueiredo and de Paola point out that 5 patients showed complete healing of the cavity wall without any evidence of epithelization except for one cavity which previously had been drained.

Finally, the character of a tuberculous cavity may depend upon the nature of the pre-existing lesion, with special reference to solid lesions, commonly termed tuberculomata. In the present series, there were 7 cases of "shelling out" of a tuberculoma, giving rise to an irregular cavity of variable dimension. Microscopic examination of a tuberculoma will show small foci of activity at the periphery which liken it to a smoldering fire. Portions of the lesions may undergo liquefaction necrosis, establish communication with an adjacent bronchus, and form a cavity. Widespread fibrocaseous disease within a lobe or a lung likewise may undergo excavation and form a bizarre pattern.

The results on 45 consecutive cases show that positive bacteriologic evidence of tuberculosis was obtained in 40% of the cases. It should be pointed out that 4 cultures were contaminated, guinea pigs were not inoculated in 5 cases, and in 8 cases the results of microscopy were not reported.

A review of the surgically resected specimens from 335 patients with pulmonary tuberculosis revealed that 240 specimens showed cavitary lesions which could be classified into 5 different types: thin-walled cavitary, thick-walled cavitary, "open healing," widespread fibrocaseous disease with ulceration, and "shelling-out" of solid lesions (tuberculomata or encapsulated caseous foci).

The most unusual lesion was that termed "open healing," which was formerly considered a rare phenomenon but accounted for 9.6% of all the cavitary lesions in this series. (Thompson, J. R., The Character of Tuberculous Cavities as Seen in Surgically Resected Specimens: *Am. Rev. Tuberc.*, 72: 158-169, August 1955)

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Endometriosis

Few problems in the field of medicine test the diagnostic and therapeutic judgment of the surgeon more fully than endometriosis of the pelvis. Mimicking almost any of the clinical entities common to the lower abdomen and pelvis of the female, it manifests an unusual and unexplainable affinity for the relatively young woman in certain socio-economic groups. It is unfortunate that, despite extensive investigations, the complex nature of this disease is still not fully understood.

The term endometriosis implies a condition in which anatomic sites other than the corpus uteri contain tissue possessing the histologic properties of endometrium. Although most of these extrauterine islands also possess the physiologic properties of endometrium, an occasional area does not appear to respond to the cyclic influence of the ovary.

Involvement of the genital organs and the contiguous pelvic structures are by far the most conspicuous. However, the bowel, operative scars, and the perineum are not rare sites of this disease. Less common sites are the bladder, umbilicus, kidney, rectus muscles, pectoral fold, and the thigh, arm, lung, and pleura.

A progressive, acquired type of dysmenorrhea, dyspareunia, abnormal uterine bleeding, and a low backache are the accepted clinical symptoms. However, these cardinal symptoms were present in less than half of the 1000 records reviewed. Although an acquired type, dysmenorrhea is also commonly associated with other lesions of the pelvis; 23% of the patients, who were still menstruating, had neither dysmenorrhea nor pain. Theoretically, the signs and symptoms should reflect the site or sites affected and the degree of tissue involvement, but it is not uncommon to have an extensive pelvic involvement entirely free of pain and a minimal degree of involvement with severe pain.

The practice of diagnosing endometriosis on the history of a progressive, acquired type of dysmenorrhea, despite the absence of correlating pelvic findings, is one of the main reasons for the notoriously low incidence of correct diagnoses. The diagnosis should represent a carefully considered interdependence of the history and rectopelvic examination. Failure to evaluate the uterosacral ligaments, cul-de-sac, and rectovaginal septum is evidence of a totally incomplete examination.

The youngest patient was 16 years of age and the oldest, 83. Eight of the patients were less than 20 years of age while 37 were in the postmenopausal group. Eighty-two percent of the patients were in the 30- to 45-year group. The average age was 37 years. In studying the age groups affected, the frequency of endometriosis in relatively young women emphasizes the tragic seriousness of this disease.

As a rule, endometriosis tends to regress to a state of little or no importance following the menopause. That this is fortunately true in most

instances is evidenced by the characteristic regression of the lesion following surgical castration or menopause. However, exceptions deserve comment. Of the 29 cases in which the complete removal of the ovaries was proved by examination of the surgical specimen, evidence of continued activity of the disease was corroborated by both surgery and tissue study. Various explanations for this failure of tissue regression have been advanced, namely, incomplete removal of the ovaries, a third or aberrant ovary, or an extra-pelvic origin of estrogen.

With 2 years of amenorrhea as an acceptable time interval, the records of 37 patients in the postmenopausal period were reviewed. The youngest patient was 44 years of age and the oldest, 83. In 6 cases, the diagnosis was made by the pathologist following radical surgery of the large bowel for suspected neoplasm. In 4 cases, pelvic endometriosis was incidental to proved cancer of the bowel or rectum. Whether the malignancy was of endometrial origin was questionable in one case. In 3 cases, endometriosis was found during surgery for cancer of the uterine corpus. In one case, endometriosis involved one ovary, whereas the contralateral ovary contained a granulosa cell tumor. In the remaining 23 cases, a history of persistent lower abdominal and pelvic distress, usually of many years' duration, eventually brought the patient to surgery. The possibility of endometriosis was not considered in any of these cases.

Treatment is dependent on the symptoms, palpable and visual extent of the disease, age, and general physical condition of the patient, the need and desire for children, and the psychosomatic evaluation of the patient. Proper management requires a thorough understanding of the potential seriousness of the disease, the indications for, and limitations of, surgery, and the probable right and possible wrong approach. Therapeutic enthusiasts, be they conservative or radical, tend to follow a road that permits little individualization, an approach of utmost value in the problem of endometriosis.

Fortunately, the trend toward conservative management of endometriosis is becoming more widely accepted. Conservative management implies preservation of the ability to bear children. In many instances, endometriosis is a probable preoperative diagnosis and the patient should be made completely aware of the possible minimal and maximal scope of the planned surgery. The possibility of future operations if surgery is conservative, and the ability to remain a normal active woman if surgery is radical, are both stressed. The young woman with endometriosis deserves every chance; however, there is always the danger that conservatism can be carried to extreme.

Conservative surgery should be considered in the younger patient, desirous of children, in whom the extent of the disease permits the preservation of the essential organs. Of added value to the conservative approach is the resection of the superior hypogastric plexus. Although this operation will not affect the pain of ovarian origin, it will often prove invaluable in

the management of uterine dysmenorrhea. Radical surgery should be considered in the older patient or in the patient in whom involvement is so extensive as to prevent the preservation of the essential organs. Thus, it is apparent that the management of the disease requires strict individualization.

Massive infiltration of the large bowel, unless obstruction is an acute problem, responds to the removal of the ovarian tissue. The regression of the bowel lesion is gradual and the residue rarely causes discomfort. In rare instances of obstruction, colostomy may be indicated. However, there is no longer justification for the extensive and hazardous resections originally advocated by Cullen. When operating in a pelvis which is extensively involved, it is well to remember the maxim that it is better to leave a bit of the uterus on the bowel than a bit of the bowel on the uterus.

Surgery for lesions of the small bowel are rarely indicated unless obstruction is present or the involvement so extensive as to increase the possibility of a later complication. (Henriksen, E., Endometriosis: Am. J. Surg., 90: 331-337, August 1955)

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Triethylene Melamine in Far Advanced Ovarian Cancer

The nitrogen mustards, which are principally used in the treatment of the lymphomas and chronic leukemias, have occasionally produced temporary therapeutic effects in some cases of far advanced inoperable carcinoma. The most striking results have been reported in lung cancer. Other types of carcinoma have not been explored as systematically or extensively, although there is ample evidence that the use of nitrogen mustard in gastric carcinoma, dysgerminomas, ovarian cancer, and breast cancer may result in temporary improvement.

When other types of polyfunctional alkylating agents became available, such as triethylene melamine (TEM) and related compounds, their effects in cancer were investigated. They produced occasional therapeutic effects in carcinoma, but there have been few systematic explorations of their value in specific forms of cancer.

A total of 26 patients with carcinoma of the ovary, proved by histologic section, were treated with TEM. All patients had been treated by surgery, and usually by x-ray therapy, and showed recurrent and progressive disease prior to chemotherapy.

TEM was given by the intravenous and oral routes. The intravenous daily dosage was usually 3 to 4 doses of 0.04 milligram per kilogram (2 to 3 mgm.). The injection was usually given into the tubing of an intravenous infusion because extravasation causes a severe local reaction. At the recommended dosage, nausea and vomiting rarely occurred, although the patients occasionally complained temporarily of anorexia.

TEM for oral use was available in 5-milligram scored tablets. The usual dose was 2.5 to 5.0 milligrams per day, for one to 2 days. The TEM tablet was taken one hour before breakfast with plain water. Oral TEM was usually tolerated satisfactorily although about 50% of the patients complained of anorexia, mild nausea, or dizziness at some time during the course of the treatment, presumably due to the drug.

The average course of oral TEM therapy was 20 to 40 milligrams during the first month. Dosage was determined at one to 2-week intervals on the basis of the patient's hematologic and clinical response. If satisfactory improvement followed the initial course, the patient was then given maintenance doses of TEM under careful hematologic control.

To induce some degree of leucopenia with TEM, is desirable as evidence of an adequate trial of therapy. Excessive dosage, however, will cause severe leucopenia, thrombocytopenia, and bleeding; the maximum bone marrow depression usually does not appear until 2 to 3 weeks after the last dose. This effect is the chief hazard in TEM therapy, and necessitates careful administration of the drug.

Carcinoma of the ovary ranks in frequency behind carcinoma of the breast, cervix, stomach, large bowel, and fundus uteri in women; because of its insidious and relatively asymptomatic onset, the 5-year cure rate is not high; Munnell and Taylor report an absolute 5-year survival of 30.8%.

The consensus is that surgery is the treatment of choice, and that excision should be radical, consisting of hysterectomy, bilateral salpingo-oophorectomy, and if possible, complete removal of the carcinomatous process. The advisability of postoperative x-ray therapy is debatable.

All patients in this series were explored and excision of the cancer was attempted when feasible. Of the 26 patients, 24 had had x-ray therapy following surgery. In 2 patients, one received a course of intravenous TEM 4 months after surgery directly followed by x-ray therapy without therapeutic benefit, and the other patient received intravenous TEM 3 months after surgery with no improvement.

In the 24 patients to whom x-ray therapy was given following surgery, either because the disease was inoperable or because of recurrent disease, improvement or control of the disease occurred in 14 cases for an average period of 12 months before evidence of recurrent disease appeared.

Following TEM therapy, 14 patients (54%) showed subjective improvement, and of this group, 8 (31%) were also objectively benefited. The therapeutic responses ranged from less than one to 46 months, with an average of 3.5 months. Two of these patients showed an unusually good response; the latter has now shown no evidence of recurrent disease for 4 years, and the possibility of a spontaneous remission must be considered.

Of the remaining 12 cases, the average response was 2 months. In the great majority of patients, the range of the period of improvement was thus one to 3 months. This is the same general duration of response seen

in lung cancer, Hodgkin's disease, and chronic myelocytic leukemia after single courses of HN2 or TEM.

Because of the duration and relative consistency of response obtained in patients with far-advanced ovarian cancer, an adequate trial of TEM is indicated in such patients. Objective improvement following TEM may also, in some cases, indicate the desirability of treating persistent masses, causing symptoms with local irradiation. It is the authors' impression that TEM offers a slight but definite advance in the palliative management of far-advanced ovarian cancer. Results of this study do not imply that TEM is necessarily the polyfunctional alkylating agent of choice. It was the compound studied in this report, and comparable series of patients have not yet been treated with nitrogen mustard (HN2), thiotriethylene phosphoramidate (thio-TEPA) or triethylene phosphoramidate (TEPA). (Sykes, M. P., et al., Triethylene Melamine in the Management of Far Advanced Ovarian Cancer: Surg. Gynec. & Obst., 101: 133-140, August 1955)

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"RX for Living"

This article, appearing originally in "Tic" magazine, a trade magazine devoted to the dental profession, was written by CDR Arthur A. Gilbert, DC USNR (Ret). CDR Gilbert retired recently after approximately twenty years' service in the Naval Dental Reserve. Among his many interests, the Commander gives prominence to his career as a dental reserve officer. His statement in this regard follows and gives his reasons for joining the Naval Reserve and the satisfactions and rewards he has derived from this association.

"What motivated my joining the Naval Reserve was recognizing the simple, central fact of existence today; all of us must do something to help preserve our way of life. It is no longer possible 'to do business as usual' in the face of modern war, to leave the work, the fighting, and dying to the professional soldier and sailor. Modern war places obligations upon all, soldier and citizen alike. And it places its heaviest responsibilities upon the experience and skills of health scientists. If atomic war comes, no group in the population will bear greater burdens than the medically trained men and women in the nation. Knowing how the armed services need, must have, physicians and dentists during times of emergency, I just could not stay at home and continue my dental practice, 'to do business as usual,' ignoring the rugged facts of our times and the clamor of one's conscience."

The satisfaction and reward Commander Gilbert realized from his professional work in the Reserve apparently were many and substantial.

He states: "I have seen plenty of heroes. It was my privilege to be at the pier in Pearl Harbor when the wounded Marines brought back from the fighting at Tarawa were disembarked from hospital ships. I shall never forget the sight as long as I live. I knew then that I would rather have been at Pearl Harbor that day waiting my turn to serve those wounded men than at any other place in the world. I was filled with pride that I belonged to the organization entrusted with the care, treatment, and rehabilitation of these valiant youngsters--survivors of the first amphibious victory in United States history. There is no more priceless knowledge in the world than a good sense of values, and there is no better way of obtaining such a fundamental perspective than to be with men who have underlined their convictions with a valor that minimizes even death."

The Naval Dental Service is fortunate in being supported by a large reserve corps who, like Commander Gilbert, recognize their duty to preserve our way of life, and gain immense satisfaction from maintaining an active interest in their reserve activities. (DentDiv, BuMed)

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Public Relations

Public Relations is a way of thinking translated into action. It is not some vague entity, but an actual philosophy that can be applied to medical practice combining public service with efforts to win good will.

Impersonal medicine is not good medicine, no matter how scientific. Not all doctors are born extroverts or naturally skilled in the art of human relations, but the right attitude can be developed. Here are some suggestions from practicing physicians to help create a good relationship between doctor and patient.

Give the patient a warm welcome. "Be glad to see patients, even if you are a little tired; be frank, be prompt, never give the impression you are doing the patient a favor. Skill is no substitute for kindness."

Deal sympathetically with patients. "Listen with calm, unhurried and sympathetic attitude to the patient. Kindness and tactfulness are important. It is not easy to be pleasant as one nears the end of a long day, but every patient needs good humor, sympathy, and a quiet manner, no matter how weary or upset the physician may be personally."

Don't appear hurried. "The physician should concentrate his entire attention on the patient during the consultation. His desk should be free from distracting material. If possible, he should refrain from answering the telephone while seeing a patient."

Treat patients as individuals. "Patients should receive special handling with reference to age and position. The older man expands in an atmosphere of respect and deference; the aging woman objects to any act

that may emphasize her frailty. Adolescent youngsters object to being treated like children. ' "

Get the patient's name right. "Make sure you know the patient's name before he enters the office--and learn to pronounce it correctly. "

Get to know the patient as an individual. "Spend a few moments in conversation about the patient's interests. Let him talk about himself. "

Place yourself on the patient's level. "Don't talk down to him. Contrive, somehow, to cultivate a non-medical vocabulary. Beware the Jehovah complex. "

Friendliness, sincerity, tolerance, frankness, patience, gentleness--these are the qualities that the patient seeks in his doctor. (ED., Public Relations, J.A.M.A. : 158: 1391, 13 August 1955)

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Hospital Corps Training

For more than ten years the Navy Training Courses used for the advancement of enlisted medical personnel have been the old Pharmacist's Mate series. These manuals, prepared during World War II, consist of series of instruction tests covering the skills and the knowledge required for advancement to each of the rate levels in the old Pharmacist's Mate rating. Each test is preceded by a reference to such source texts as the Handbook of the Hospital Corps (old 1939 edition), the Manual of the Medical Department, and the Navy Correspondence Manual. The student has to obtain copies of these references in order to prepare himself for the tests; the courses themselves contain only the questions and answers. Also, because they were built around the requirements for Pharmacist's Mates, they are not strictly applicable to the present Hospital Corpsman rating.

The most basic of the reference texts, the Handbook of the Hospital Corps, was revised in 1953. At that time, the Chief of the Bureau of Medicine and Surgery assigned the project of bringing the Navy Training Courses for Hospital Corpsmen up to date to the U. S. Naval Hospital Corps School at Portsmouth, Va., the oldest Hospital Corps school in existence. This school, with its Class A course of instruction for trainees for the Hospital Corps, its Class B advanced course for senior petty officer rates of the Hospital Corps, and its affiliation with the Naval Hospital, was an excellent source for the training material required in each book.

Prior to beginning the revision of the Training Courses, conferences were held among representatives of the Training Branch of the Bureau of Medicine and Surgery, the Bureau of Naval Personnel, and the U. S. Naval Hospital Corps School to determine the scope of the project. After an analysis of the Handbook of the Hospital Corps and of the requirements for

advancement in rating as specified in the Manual of Qualifications for Advancement in Rating, NavPers 18068, it was decided that extracts from the Handbook and from other pertinent manuals would be included in the Navy Training Courses. This was deemed necessary, first, because the referenced manuals are not available on a "one per man" basis, and second, because the Hospital Corpsmen in the field could easily carry the compact Navy Training Courses. Thus, these books could be a source of ready reference in the field when other reference material would not be available.

The scope determined, the Hospital Corps School prepared the basic texts for courses for each rate level. The National Naval Medical Center, Bethesda, Md., prepared illustrations to accompany the texts. The completed manuscripts and art work were forwarded to the Training Branch of the Bureau of Medicine and Surgery, where they were reviewed for appropriateness of technical coverage. After being approved by BuMed, the manuscripts were sent to the Bureau of Naval Personnel for final editing and preparation of the text and illustrations for the printer.

Starting with Hospitalman, the Navy Training Courses contain an overall coverage of the subjects to be studied in order for a striker or a Corpsman to prepare himself for advancement to the next higher rate. Immediately following each subject area, there is a series of instruction tests designed to help the student in his preparation for the advancement examination. The questions cover a large part of the material in which knowledge and proficiency must be demonstrated in order for a Corpsman to be advanced. Answers are provided in the appendix to each course. These new Navy Training Courses should also prove valuable to those who are responsible for the preparation of the examinations for advancement in rating.

The all-new Navy Training Courses for Hospital Corpsmen are so designed that if a Corpsman is transferred to another activity before completing his course, certification showing the number of assignments completed may be made by the Commanding Officer and forwarded to the new duty station, where the Corpsman can complete the unfinished assignments.

These courses may also be used by various medical activities for conducting on-the-job training programs for each rate in the medical rating group.

At the present time, only Hospitalman, NavPers 10664, is available and is being issued by all District Publications and Printing Offices. Training Courses for each of the rates of Hospital Corpsman 3, 2, and 1, and Chief Hospital Corpsman have been completed and are being printed. As soon as they are published, Hospital Corpsmen will once again have up-to-date Navy Training Courses to use in preparing for advancement. And, what is more, they will have Courses which contain, in addition to questions and answers, most of the text materials on which those questions and answers are based. The all-new Navy Training Courses for Hospital Corpsmen will make

available a "packaged" course which should aid materially in study for advancement. (CDR L. L. Isert, MSC USN, BuMed, Naval Training Bulletin, July 1955)

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Information for Medical Officers

Medical officers are encouraged to attend one of the following courses of instruction in the indoctrination of the defensive aspects of atomic, biological, and chemical warfare. Each course is five weeks in duration. Two weeks are devoted to atomic warfare defense; two weeks to biological-chemical warfare defense; and the fifth week to the planning and damage control aspects of special weapons handling. Secret clearance is required for all or any phase of the courses, and prospective students should familiarize themselves with the contents of OpNav Instruction 5510.1A. Additional information on the courses may be found in BuPers Instruction 1500.25 and BuPers Notice 1500 of 10 May 1955. Requests for attendance should be processed in accordance with local instructions. Convening dates for the remainder of Fiscal Year 1956 are contained in the directives above.

- 1 U. S. Naval Schools Command, Treasure Island, Calif.
This course is offered for fleet and shore based personnel and convenes approximately every two weeks.
- 2 U. S. Naval Unit, Chemical Corps School, Fort McClellan, Ala.
This course is offered primarily for shore based personnel and convenes approximately every four weeks.
- 3 U. S. Naval Damage Control Center, Philadelphia, Pa.
This course is offered primarily for fleet personnel and convenes approximately every four weeks.

Any officer whose duties or prospective duties require a knowledge of ABCD is eligible to attend the above courses. Therefore, a considerable amount of material is included in the courses other than strictly medical aspects. However, this background material is considered essential for a clear understanding of the role of the medical officer in passive defense. (ProfDiv, BuMed)

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Medical Technical Training of Hospital Corpsmen

For the past several months, quotas for technical specialty training in certain fields for hospital corpsmen have not been filled. It is desired

that all medical department officers advise hospital corpsmen of the need for volunteers for training in Neuropsychiatry Technic and Operating Room Technic.

Eligibility Requirements for Neuropsychiatry Technic

HM2, HM3, HN or HA
 High school graduate
 Eighteen months' obligated service
 Volunteer
 Interviewed by a medical officer to determine motivation for this training
 Have completed less than 20 months on current tour of shore duty, or more than 12 months on current tour of sea duty

Eligibility Requirements for Operating Room Technic

HM3, HN or HA
 Twenty-four months' obligated service
 Two years' high school education
 Volunteer
 Interviewed by a medical officer to determine motivation for this training
 Have completed less than 20 months on current tour of shore duty, or more than 12 months on current tour of sea duty

(ProfDiv, BuMed)

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Course in Clinical Use of Radioactive Isotopes

The Bureau of Medicine and Surgery plans to inaugurate a six months course of instruction in the "Clinical Use of Radioactive Isotopes," at the U.S. Naval Medical School, Bethesda, Md., commencing in January 1956.

Officers considered eligible for attendance at the course are Regular Navy Lieutenant Commanders or below who have completed a minimum of one year of formal training in Pathology or Internal Medicine, and Commanders or below who have completed a minimum of one year of formal training in Radiology.

Eligible and interested medical officer personnel should forward requests to the Chief of the Bureau of Medicine and Surgery, via official channels. Requests for attendance at the January course must be received in BuMed prior to 1 October 1955. (ProfDiv, BuMed)

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From the Note Book

1 Correction: The footnote on page 3, Vol. 26, No. 1, dated 8 July 1955, should read "See News Letter, Vol. 24, No. 7, dated 15 October 1954."

2 Commodore G. C. Paffenbarger, DC USNR, Senior Research Associate of the American Dental Association's research group at the National Bureau of Standards, was recently presented the Georgetown University School of Dentistry Award of Merit for 1955, in recognition of his significant contributions to research in the field of dental materials during the past 25 years. (NBS, TRP 8366)

3 Retirements: Captains J. P. Brady, A. W. Loy, MC USN: CDRS H. T. Dean, C. J. Owen, MSC USN: LTS J. R. Brown, MSC USN, G. W. Perdue, DC USN: CWOS C. F. Greene, C. T. Pearre, USN. (TIO, BuMed)

4 Dr. Max Theiler, Director of the Rockefeller Foundation Laboratories, Rockefeller Institute, visited NAMRU-3 in the first week of August 1955. Dr. Theiler, whose career has been devoted to the study of virus diseases and malaria, and who was awarded a Nobel Prize for work on a yellow fever vaccine, consulted with the NAMRU Virology Department on problems of mutual interest.

 Captain Joe L. Stockard, MC USA, visited NAMRU-3 in the first week of August 1955, and spoke to the NAMRU staff about his experiences with leptospirosis in Malaya. This disease constituted one third of hospitalized fevers of undetermined etiology on admission in Malaya. Captain Stockard discussed the various aspects in some detail. This presentation was of interest particularly because of current plans at NAMRU-3 to investigate leptospirosis in Egypt. (NAMRU-3)

5 The Sixth Annual Meeting of the Metropolitan New York Society of Oral Surgeons is scheduled to be held at the U. S. Naval Hospital, St. Albans, September 21, 1955. The tentative agenda calls for essays on "The Repair of Fractures and Bone Grafts," "Role of Lyophilized Bone Grafts, Especially in Connection with Fractures," "Diagnostic Evaluation of Fractures Clinically and Radiographically," "Maxillary and Malar Fractures," "Emergency Management of Fractures," and "Condylar Fractures." (TIO, BuMed)

6 Arrangement has been made with the American College of Radiology to provide information kits dealing with the anniversary of Roentgen's discovery of x-ray. One of these will be sent directly to each Naval Hospital and certain other activities. It is suggested that this kit can well be

used as the basis for some appropriate remarks, probably by the radiologist at a suitably timed staff meeting. It should also be possible to use the material as a basis for an item in the hospital or station paper. (DMO, 5th N. D.)

7 Many groups of dental students who hold commissions as Ensigns (1995) are now taking the recently established orientation course during their school vacation period. Designed to introduce future dental officers to naval dental procedures and the customs and traditions of the Service, this training duty has had a favorable reception in many districts.

Seventeen Ensigns (1995) from the Potomac River Naval Command have just completed this course at the U. S. Naval Dental School, Bethesda, Md., participating in 30 days military and professional training duty. An additional fourteen are commencing their training at Treasure Island, San Francisco. Seven Ensigns in the Third Naval District began their training on July 1, 1955, with three being ordered to duty for 60 days each and the remaining four for 30 days each. Approximately 36 Ensigns in the Ninth Naval District are taking the orientation course in July and August. (TIO, BuMed)

8 A supplement to the booklet, "Immunization Information for International Travel," has just been released. It carries changes made in immunization requirements from June 1954 to June 1955. Persons having a 1954 edition of the booklet may obtain copies of the supplement, free of charge, from the U. S. Public Health Service, Division of Foreign Quarantine, Washington 25, D. C. (P. H. S., Dept., H. E. W.)

9 Most types of cancer show a greater incidence among men than women, which may result from a different degree of exposure to environmental factors, according to data from 10 metropolitan areas studied by the National Cancer Institute of the Public Health Service. The difference in the incidence rates increases with age, especially for respiratory cancer, leukemia, and cancer of the buccal cavity. This suggests a difference between men and women in terms of the intensity or amount of exposure to certain factors, such as occupational hazards and social habits. Only cancer of the breast, reproductive organs, and certain endocrine glands was found to occur more frequently among women than among men. (P. H. S., Dept. H. E. W.)

10 In a series of 44 cases of typical mumps, the serum amylase was elevated at admission in 81.8% of all patients and the serum lipase in 72.7% of the few patients tested. Relatively good agreement between the two tests was observed. It is concluded that singly they offer a high, and in combination, an even higher, degree of diagnostic accuracy in doubtful cases of this disease. (Am. J. Med. Sc., August 1955; Major W. R. Warren, MC USA)

Professional Examinations for
Promotion Deferred

The Chief of Naval Personnel, on 11 August 1955, approved a recommendation submitted by the Bureau of Medicine and Surgery to defer professional examinations for promotion for medical and dental officers in the Regular Navy and Naval Reserve. This authority becomes effective immediately and extends for an indefinite period. Official notification will be promulgated by the Bureau of Naval Personnel in the near future. (Pers. & Prof. Div., BuMed)

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Board Certifications

American Board of Internal Medicine

LT Carl S. Alexander (MC) USNR
LCDR Joseph S. Burkle (MC) USN
LCDR Edward A. Carr, Jr., (MC) USNR
LT Samuel M. Fox, III (MC) USN
LT Donald C. Kent (MC) USN
LCDR William McFarland (MC) USNR
CDR Joseph J. Robbins (MC) USN
LT James L. Smeltzer (MC) USNR
LT Donald E. Taylor (MC) USNR

American Board of Ophthalmology

LT Milton H. Lincoff (MC) USNR

American Board of Pediatrics

LT Norman B. Schell (MC) USNR

American Board of Preventive Medicine

CAPT Warren E. Klein (MC) USN
(Aviation Medicine, Founders Group)
CDR Philip B. Phillips (MC) USN

American Board of Psychiatry

CDR Philip B. Phillips (MC) USN

American Board of Radiology

LT John H. Griffin (MC) USN

American Board of Surgery

LT Charles E. Brown (MC) USNR
LCDR Raleigh M. Hood (MC) USN
CDR Harry F. Lonhardt (MC) USN
LT William F. Reid (MC) USNR

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BUMED INSTRUCTION 6710.17

2 August 1955

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: FSN 6505-140-3000, Scopolamine Hydrobromide Tablets, USP,
0.6 mg. (1/100 gr.), 20s; disposition instructions for

Ref: (a) Art. 25-21, ManMed Dept

This Instruction promulgates disposition instructions for stocks of subject item having identifying characteristics as follows: (1) material distributed by Conray Products Company but manufactured by Burroughs Wellcome Company, (2) two tubes of 20 tablets contained in each package as originally supplied, (3) each package marked "Scopolamine Hydrobromide N. F. VII 1/100 Grain Sea Sickness Preventative," and (4) a label attached to each tube bearing a caution "Shall not be taken when morphine has been given."

Pursuant to a defective material report, it was found by laboratory examination of samples that this material does not comply with specification requirements as to the packaging, packing, and labeling. In view of these findings, the age of the material, and nature of the item, it is considered expedient that stocks on hand be regarded as not suitable for issue and use.

Survey and destroy, in accordance with the provisions of reference (a), any on-hand stocks of subject item as identified in paragraph 1. above.

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BUMED INSTRUCTION 6700.5A

5 August 1955

From: Chief, Bureau of Medicine and Surgery
To: Distribution List

Subj: Reserve Fleets; medical and dental departments in vessels of

Ref: (a) OpNavInst 4770.5, Subj: General instructions for the Reserve Fleets
(b) CNO ltr Serial 1878P43 dtd 24 Sep 1953
(c) Navy Property Redistribution and Disposal Regulation No. 1
(d) BuMedInst 6700.14, Subj: Levels of supply for medical and dental stores at consumer activities

Encl: (1) Instructions for Medical and Dental Departments in Vessels of the Reserve Fleets
(2) Procedures for Return of Vessels to Active Status
(3) Criteria for Returnable Items

This Instruction provides instructions regarding the activation and inactivation of medical and dental departments of vessels of the Reserve Fleets. BuMed Instruction 6700.5, dated 1 March 1954, is canceled.

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BUMED INSTRUCTION 7302.4

10 August 1955

From: Chief, Bureau of Medicine and Surgery
To: All Naval Hospitals and National Naval Medical Center
Subj: The Navy Stock Fund

Ref: (a) BuMedInst 4440.3, subj: Material in nonaccountable status

Encl: (1) Operating Procedures for Naval Hospitals Under the Navy Stock Fund
(2) Flow charts, sample reports and forms

This Instruction promulgates operating procedures under the Navy Stock Fund covering cognizant "G" and "L" materials in naval hospitals and National Naval Medical Center and authorizes and directs their use coincident with the capitalization of "in store inventories" in each individual command into the Navy Stock Account.

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The printing of this publication has been approved by the Director of the Bureau of the Budget, 16 May 1955.

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MEDICAL RESERVE SECTION

Military Surgeons to Discuss Medical Aspects of Atomic Warfare at Annual Meeting

The Association of Military Surgeons of the United States will present a comprehensive 3-day program on the medical problems facing the military services and the nation in an atomic war. This announcement was made by the Association President, Major General Joseph I. Martin, Chief Surgeon of the U. S. Army in Europe. General Martin stated that the entire scientific and professional program of the 62nd Annual Convention of the Association, to be held at the Statler Hotel in Washington, D. C., November 7, 8, and 9, this year, would be devoted to these problems.

The Convention will be addressed on the first morning by Admiral Lewis L. Strauss, Chairman of the Atomic Energy Commission; by Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical); by the Surgeons General of the Army, Navy, Air Force, and Public Health Service; and by the medical chiefs of the Veterans Administration and the Federal Civil Defense Administration. Medical industries of the country will also choose a speaker to address the Convention.

General Martin said that the first afternoon session will be devoted to discussion of the medical effects of nuclear warfare, including characteristics of nuclear explosions, and injuries due to blast, heat, and radiation.

The entire second day's program will be devoted to Principles of the Care of Mass Casualties. It will cover such important topics as protective measures; initial aid and rescue; sorting of casualties; emergency medical care; cost of delays in treatment; treatment of large numbers of blast, thermal, radiation, and neuropsychiatric casualties; use of drugs, blood, and anesthetics in dealing with mass casualties; and public health, sanitation, and welfare problems in atomic attacks.

The third day will be given over to Organization for the Management of Mass Casualties. The program will discuss the roles to be played by physicians, dentists, veterinarians, nurses, Medical Service Corps officers, Women's Medical Specialist Corps officers, and technical assistants. It will propose ways and means to train these people for their roles in atomic warfare. Finally, the methods for organizing sorting facilities, transportation,

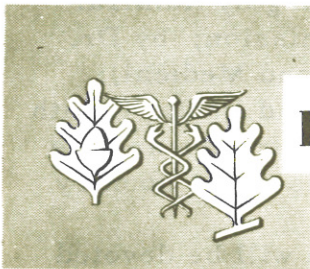
fixed and field hospitals, and holding units, to deal with thousands of casualties at one time, will be presented.

Each topic will be discussed by an expert in his field who has made a particular study of the medical problems in atomic warfare.

The Chief of Naval Personnel has approved the awarding of retirement point credits to those Naval Reserve Medical Department officers attending the convention under appropriate duty orders. Inactive Naval Reserve Medical Department officers who desire to receive retirement point credits for attendance at this convention should submit their request to the Commander of their home Naval District for appropriate duty orders, without pay, covering the number of days which they plan to be in attendance. Officers on active duty may be given "Authorization Orders" in accordance with current instructions.

Complete information concerning this convention may be secured by writing to the General Chairman, AMSUS, Office of the Surgeon General, U.S. Army, Room 2848, Main Navy Building, Washington 25, D. C.

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PREVENTIVE MEDICINE SECTION

Preventive Medicine Briefing

Increasing Hazard of Yellow Fever. The wave of yellow fever that has been moving westward and northward through Central America since its origin in eastern Panama in 1948, has reached northwestern Honduras this year. It is anticipated that this disease will move northward at approximately 160 miles per year; however, the pattern of this wave may change compelling modifications in the forecast from time to time. Preventive medicine personnel in our southern states, along the Gulf of Mexico, and those stationed in Central America, along the northeastern shore of South America, and in the Caribbean should be cognizant of this migration of yellow fever. An excellent article on the migration of this disease appeared in the July 1955 issue of the American Journal of Public Health, Vol. 45, No. 7, pp., 923-927

Sanitary Engineering Billet. A civilian position of sanitary engineer (GS-14) in the Preventive Medicine Division has been approved and authorized. The establishment of this billet will enhance the Bureau's contribution toward better sanitation throughout the Navy.

Civilian Physicians. During May 1955, staffing reports revealed 56 civilian physicians on board at infirmaries and dispensaries of 26 industrial-type activities. The staffs of Naval Shipyard, Portsmouth, Va., and Marine Corps Clothing Depot, Philadelphia, Pa., each included a civilian physician for the first time in May. At Naval Shipyard, Charleston, S. C., the number of civilian physicians increased from two to four. On the other hand, Naval Air Station, Jacksonville, Fla., and Naval Supply Depot, Ogden, Utah, were reduced from one civilian physician each to none in May; and at Naval Shipyard, Long Beach, Calif., the number went from three to two in May.

Revision of Manual of Naval Hygiene and Sanitation. Although the Manual of Naval Hygiene and Sanitation (NavMed P-126, 1949) has been under intensive revision during the past three years, only one chapter, Chapter 10, "Insecticides and Dispersal Methods," has been issued to the field. The delay in issuing additional chapters has arisen through a series of originally unforeseen circumstances. The first of these has been occasioned by the reference of chapters to various technical experts, and the fact that a large number of controversial problems have arisen in connection with proposed new standards. In addition to this situation, it has now become apparent that a uniform tri-service Health Code is being contemplated. This will involve a complete revision of nearly all preventive medicine directives and regulations now promulgated individually by each of the three Services. In view of the above, and as an interim procedure, and in view of the fact that the current issue of NavMed P-126 is out of print, it has been decided that minor but essential revisions, rather than a complete revision of the current manual will be undertaken at this time. Three chapters, Chapter 1, "Messing Sanitation and Rations," Chapter 2, "Naval Housing," and Chapter 3, "Heating, Ventilation, and Air Conditioning of Ships," have reached the stage where it is anticipated they will be issued to the field early in 1956. A schedule is planned for publication thereafter of additional chapters at the rate of one or two chapters each month until completion.

Thermal Stress Control. Lieutenant Commander David Minard MC USN, Head of the Thermal Stress Control Section in the Bureau of Medicine and Surgery, has recently returned from the Marine Corps Recruit Depot, Parris Island, S. C., While there, he was engaged in the study of the physiological effects of exercise on unacclimatized recruits in hot weather. The objectives of these studies are to provide more effective "thermal standards" for regulating hot weather training and for preventing or reducing the incidence of heat casualties.

Navy Civilian Personnel Instruction 88. This instruction, which covers the naval civilian employee occupational health program, has been revised and has been distributed to field activities.

Hearing Conservation Program. The new directive concerning a Navy-wide hearing conservation program is still being cleared through technical bureaus and the National Research Council Committee on Hearing and Bio-Acoustics.

Industrial Health Data Sheet (NavMed 576). This Data Sheet is being revised to bring it up to date and to eliminate portions that have made reporting difficult. Statistical information obtained from the reports on these Sheets is sent back to field activities on a quarterly basis through the publication "Statistics of Navy Medicine" (NavMed P-5028). Reference was made to the reports in the article "Report of Industrial Medicine in the Navy," which appeared in the May 1955 issue of NavMed P-5028 (Vol. 11, No. 5, p. 4)

Threshold Limits for Toxic Materials. An instruction has been prepared establishing threshold limit values which will serve as a basic reference in evaluating potentially hazardous exposures. This instruction is now being circulated through the Bureau.

Occupational Dermatitis in Civilian Employees and Naval Personnel. An instruction has been prepared stressing the need for preventive measures which will reduce noneffectiveness due to a high incidence of occupational dermatitis. This instruction is now at the printers and should reach field activities at an early date.

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Shigellosis (Bacillary Dysentery)

(This review consists of pertinent portions of a revision of the Army Technical Bulletin, Medical, No. 119, which was prepared by members of the Commission on Enteric Infections, Armed Forces Epidemiological Board. Editorial changes from the original have been made in adopting this article for publication in the U.S. Navy Medical News Letter.)

Shigellosis includes all infections with organisms of the genus Shigella. Clinical manifestations vary widely from classical dysentery with numerous bloody, mucopurulent stools, and severe enteric and systemic manifestations, to mild disorders evidenced only by an increased number of abnormally fluid stools. Subclinical infections without enteric or systemic symptoms also occur and have great importance in the spread of shigellosis.

Shigellosis is worldwide in distribution, though rare in communities and countries where good sanitation is practiced, and very common in the "under-developed" areas. Although it is characteristically much more prevalent in summer months and in warmer climates, nevertheless, devastating epidemics have been known to occur in temperate zones under appropriate conditions during the winter. It is particularly troublesome in confined population groups such as prisoner of war camps or troops in the field.

Clinical shigellosis (bacillary dysentery) ordinarily occurs more commonly than clinical amebiasis (amebic dysentery). Furthermore, the individual attack of the former is more disabling than the latter. Shigellosis has rendered whole military units ineffective.

Shigella infections in nature occur only in man and primates. Shigellae are discharged in fecal wastes. Infection is spread by the contamination of food or drink by flies, by food handlers who are carriers, by the use of human feces as fertilizer, or by other means. Direct person-to-person spread occurs commonly, particularly in confined population groups.

Shigellae are Gram-negative, nonmotile bacilli which produce acid but no gas in the utilization of carbohydrates. (One rare type, "Newcastle," produces a small amount of gas.) Four groups and an increasing number of types have been differentiated.

Clinical and Epidemiological Features

The incubation period in clinical cases is commonly 1 to 3 days, rarely less than 24 hours or more than 5 days. Variability in severity is an outstanding clinical characteristic of Shigellosis. The now rare Shiga infections tend to be severe, the Schmitz (Ambigua) and Sonnei ordinarily are mild, while the Flexner-Boyd infections are of intermediate but variable severity. In areas of high endemic prevalence, the infections tend to be more severe, but it is not clear whether this is due to an increased virulence of the organisms, to a decreased resistance of the host, or to both.

The very mild cases have only a few loose stools. With increasing severity, there are abdominal cramps and straining, fever (especially at onset), general malaise, and an increased number of grossly abnormal stools, usually with mucopurulent exudate and microscopic evidence of blood. In severe infections, the onset is sudden with high fever (possibly only on the day of onset), acute abdominal symptoms, and stools with little more than bloody mucopurulent exudate. Prostration and dehydration become marked in cases without effective treatment. The course varies with severity. Spontaneous recovery after a short illness is the rule in mild cases. Those of moderate severity, if untreated, may become protracted illnesses, particularly in infants and children. Severe cases, notably in poorly nourished populations, often result in death or chronic enteric disease. With effective therapy, there is rapid and complete recovery,

Sporadic cases of shigellosis do occur, but the infection is observed more commonly as a prolonged outbreak. Scattered cases appear in the beginning, then a small number of new cases appear daily, persistently day after day. Explosive epidemics of shigellosis occur only rarely.

Epidemiological data, clinical findings, and laboratory observations are to be considered in the diagnosis of shigellosis. The first two provide the basis for a tentative clinical diagnosis to guide in the initiation of therapy. The nature of the outbreak may suggest the diagnosis more accurately than the differential clinical findings. The bacteriological report, which is essential for a positive diagnosis of shigellosis, often requires 48 to 72 hours.

Explosive outbreaks of acute diarrheal disease suggest a diagnosis other than shigellosis. Staphylococcal food poisoning is indicated if severe vomiting and diarrhea persist only for a few hours and if the outbreak is over within 24 hours. Onsets of clinical cases in an explosive outbreak of salmonellosis are distributed over 3 to 5 days, and in a salmonella outbreak, the illnesses commonly last for only 1 to 3 days. A nonexplosive outbreak in a nursery or children's ward suggests, first of all, infections with pathogenic coliform organisms. Epidemics, in which nausea and vomiting rather than diarrhea are the major symptoms, speak for one of the disorders proven to be due to filterable agents, presumably viral. The "smouldering epidemic" should suggest shigellosis.

Outbreaks tend to receive the attention which leads to a dependable diagnosis, but often this is not true of sporadic or endemic infections. Here, the evidence of most value is a knowledge of the prevailing cause of such illnesses. In military and confined population groups, a dependable diagnosis in one case suggests the probable diagnosis of succeeding cases. Accurate diagnosis is urgent because outbreaks of shigellosis begin with sporadic or "endemic" infections. Proper control at this time may prevent disturbing epidemics. The delayed laboratory findings may have little value in guiding treatment in a self-limited infection of short duration, but an accurate knowledge of the cause of a preceding infectious illness is of high importance in suggesting the probable diagnosis of subsequent cases.

In considering the clinical diagnosis, a due appreciation of when to suspect Shigella infection is important. This diagnosis is missed commonly because the clinician considers it only in cases which present the manifestations of classical bacillary dysentery. Clinical shigellosis most commonly manifests itself as a "simple diarrhea." Symptoms are often initiated with fever, following which the enteric disorder increases in severity over a period of a few hours. Usually, the patient seeks medical advice, either within a day or two or not at all. This contrasts with amebic dysentery in which symptoms ordinarily begin more gradually, and are less acute, with the patient seeking medical advice only after some days. Salmonellosis is seen most frequently as a food-borne epidemic; sporadic or endemic

infections are indistinguishable clinically from shigellosis. In each of these three enteric infections, the prominent clinical feature is diarrhea with related abdominal distress. This differentiates them from other disorders with diarrhea but in which other symptoms, as nausea and vomiting, are outstanding. Helpful as these indications are in older children and adults, at best they provide only a clinical impression which is accurate only in a substantial majority of cases. Clinical diagnosis of diarrheal disease in infants and children is less reliable. Laboratory examination is indicated in all cases and is essential for dependable diagnosis in the young.

Laboratory Findings

The importance of microscopic examination of feces warrants emphasis. This may immediately indicate the diagnosis in acute cases of amebic dysentery. Failure to find trophozoites in such cases is strong negative evidence against an amebic infection. Furthermore, the presence of numerous polymorphonuclear leukocytes, accompanied by some large macrophages, speaks strongly in favor of a primary enteric infection, most probably shigellosis. The absence of these, however, does not rule out shigellosis. A rich cellular exudate suggests bacillary dysentery; a scant exudate with more erythrocytes calls for a more careful search for amebae. These observations supplement clinical findings and can be obtained without delay. However, bacteriological tests are essential for a positive diagnosis of shigellosis.

Specimens can be obtained most conveniently by rectal swabs. In diarrheal disease, the rectal sphincter tends to be relaxed and the mucous membrane moist. An ordinary sterile cotton-tipped applicator is easily inserted by a gentle rotating movement. The insertion of the swab may be facilitated by placing it in a 10 cm. length of sterile gum rubber tubing with a bevelled tip. With the swab slightly short of this tip and with the exterior of the tube lubricated, the swab slips easily by the sphincter. It is exposed by slightly withdrawing the tube. The specimen for culture is collected by rotating the swab as it is swung in a circular motion to give the tip contact with the mucous membrane. The swab is then drawn back into the tube and the latter is withdrawn from the rectum. The specimen is inoculated immediately onto culture plates.

The steps in the bacteriological study are the responsibility of the laboratory worker; however, the clinician should know that, with a proper selection of technics, substantial numbers of enteric cultures may be handled easily, and that the bacteriological laboratory is required for an accurate diagnosis of enteric infections. Shipped or old fecal specimens are not satisfactory for an examination for Shigella.

Treatment

Shigellae, as do many other organisms, acquire resistance to some of the widely used antimicrobial therapeutic agents. Recommended therapy will, therefore, vary. In vitro sensitivity tests are highly useful to indicate the particular therapeutic agents which are and which are not effective in the prevailing infections. These tests are indicated in representative cases but are not required routinely for all cases during an outbreak. Where organisms are sensitive, the broad spectrum antibiotics, tetracycline, oxytetracycline, chlortetracycline, and chloramphenicol, are all highly effective in Shigella infections even when given in small to moderate dosage. A conservative but ordinarily adequate dosage for adults is an initial 1 gm. followed by 0.5 gm. 4 times daily for one day, and thereafter 0.5 gm. twice daily for a maximum period of 7 days. Medication may be discontinued 2 days after acute symptoms have subsided. Sulfonamides, when first used, were highly effective but now are useful only in those cases in which the etiological agent is sensitive to sulfonamides. A high percentage of Shigella are now resistant to sulfonamides. Sulfadiazine is the compound of choice when given as a clinical trial or when its use is indicated by in vitro sensitivity tests. The recommended dosage for adults is 2.0 gm. initially, followed by 1.0 gm. four times a day. The poorly absorbed sulfonamides, sulfasuxidine and sulfaguanidine, despite their apparent theoretical advantage, have been found less effective than sulfadiazine by clinical trial.

Serum therapy has always been of questionable value even in Shiga infections, and is considered unjustified.

Patients should be observed for at least 2 days following cessation of therapy. When facilities for stool cultures are available, two cultures on 2 consecutive days should be negative before disposition. If these conditions are satisfied and if the patient's general condition permits, he may be returned to duty. Patients should always be isolated and proper sanitary precautions observed in disposition of their feces. Adequate treatment is essential to rapidly terminate the infection in the individual. Bedding, night clothing, and dishes should be disinfected by boiling or adequate chemical means. Medical officers should ensure that all attendants caring for the patient are familiar with individual and general preventive measures necessary to prevent spread of the disease.

Prevention

A high level of personal cleanliness is of great importance in preventing the spread of Shigella infections, and it is essential that adequate facilities be provided to promote this. Only water from approved sources should be used for drinking and culinary purposes. Dairy products and

meats should be inspected at the source and at the processor's if possible, and thorough bacteriological screening should be made of all foods to be served uncooked in areas where outbreaks occur. Other fresh foods should be thoroughly washed and cleaned prior to use. Eating establishments located adjacent to military reservations, which fail to meet proper sanitary standards in the procurement and serving of food should be declared "off limits" to Navy personnel. In regions where human excreta are used for fertilizer, locally procured fresh vegetables should not be served unless it is clearly established that they have not been so fertilized. Care should be given to the proper storage and refrigeration of prepared foodstuffs. Dishes and kitchen utensils should be washed in warm soapy water, disinfected in water of 180° F. (or in a germicidal rinse if temperatures of this order can not be obtained), and air dried. During the drying and storage period they should be protected from insects and dust. Precautions in regard to proper cleansing of eating utensils are particularly important in the field. Breakdown of mess sanitation is a frequent cause of outbreaks of enteritis.

Mess personnel should be instructed in personal hygiene and checked frequently to ascertain that instructions are carried out, particularly those relative to adequate handwashing, using running, hot water and soap. In the presence of an epidemic, stool culture of food handlers and other mess personnel is an important step in instituting control measures. All infected food-service personnel should be removed from duty, and treatment should be instituted. Persons known to have been infected should not be allowed to participate in any phase of preparation or serving of food for a period of 3 months, and then only if no symptoms persist and at least three consecutive negative stool cultures taken a week apart have been obtained. In tropical countries, the use of natives as food handlers is extremely hazardous, as a high proportion of them are carriers of dysentery organisms and they usually have low standards of personal hygiene. If used, these people must be trained and supervised constantly.

Sanitary disposal should be made of human excreta, garbage, and kitchen wastes.

Prevalence of flies is frequently associated with the spread of bacillary dysentery, and control of these insects is essential. Control measures should include screening of kitchens, mess halls, and latrines; proper disposal of organic waste; the use of fly-proof latrines in the field; and the destruction of adult flies with insecticides and fly swatters.

Polyvalent and monovalent Shigella vaccines have been studied, but to date there has been no unequivocal evidence that they have great effectiveness. Their use is not authorized except in research studies approved by the Bureau.

Chemical Warfare and Biological Warfare Defense

The attention of Medical Department personnel is called to the availability of the below listed publications:

- 1 NavDocks Technical Publication TP-PL-3, Chemical Warfare Defense, revised 1 July 1955.
- 2 NavDocks Technical Publication TP-PL-4, Biological Warfare Defense, reprinted 1 September 1953.

Medical Department personnel are responsible for the medical aspects of prevention and treatment of biological warfare and chemical warfare casualties. The publications referred to above contain valuable information needed for this purpose. Attention is invited specifically to the sections dealing with protection and decontamination of food and water, and decontamination of personnel who are not casualties. Medical personnel of each shore-based activity should have on hand copies of the publications which can be obtained by the activity through appropriate District Publications and Printing Office. Instructions for requisitioning Bureau of Yards and Docks publications are contained in BuDocks Instruction 5605. 1A, dated 8 April 1955.

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